

Application No. 10/713,120
Amendment dated September 27, 2006
Response to Office Action of June 1, 2006

REMARKS

Reconsideration of the subject application is requested. It is believed that the application as now amended is allowable because of the following reasons.

The specification and claims have been amended to overcome the informalities which the Examiner identified in his office action. Reference is made to the August 30, 2000 telephone interview with Primary Examiner A. Dexter Tugbang. The substance of the interview was claim 6 of the patent application, in particular the term "spinneret", as well as the Examiner's assertion in the rejection that employing colloidal graphite would have been obvious, in view of the applied art. No consensus has been reached, as the Examiner maintained that art was properly applied against the claims.

It is believed that claims 6 and 20 of this application as now amended are in conditions for allowance because of the following reasons.

First, Martin and Coler are directed rigid compositions for providing electrical resistances. (see Martin, col. 1, lines 6-9 and Coler, lines 15-21. Second, neither Martin nor Coler nor Ohgushi et al., apply a conductive resistive coating to a nucleus structure in a spinneret.

Moreover, Ohgushi et al. 4,983,814, the primary reference, discloses a fibrous heating element which substantially differs from claim 6. The Ohgushi et al. fibrous heating

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element consists of a core coated with electroconductive layers. Ohgushi et al. was compared to applicant's invention on page 3, lines 7-28 of applicant's specification, namely,

"US Patent 4983814, issued on January 8, 1991 contains a description of an electric heating cloth with 1 - 100 kOhm/m linear electric resistance heating threads in the weft.

The heating resistive thread for this fiber also has a "shell-nucleus" structure, in which the "nucleus" consists of a nylon-, polyester- or polyolefin type (all having low melting points within 100 - 120 °C temperature range) synthetic fiber or high-melting polyfluoroethylene and polyamide type, and the "shell" that serves as the resistive material, is a composite that contains a polyester type polyurethane resin and a carbon filler at a mass ratio of 1:0.3 and 1:1, respectively.

The carbon filler used is industrial carbon (produced from oven or channel acetylene, and their mixtures) or graphite (natural, with a dense crystalline, flaky or amorphous structure, and artificial) at a mass ratio of 1:1.67 and 1:4 (column 8, paragraph 2 in the description) or 1:0.5 and 1:0.6 (in examples 1 and 2), respectively.

The heating resistive thread is produced by applying from one to three coats of the resistive material to the synthetic thread described above at a mass ratio of 1,7:1 and 2.8:1, respectively.

The disadvantages of this conductive thread are: requirements to apply two or three coats of the resistive material on the resistive thread "nucleus" and a heavy consumption of the resistive material even with single-coat "shell", which increases the thread production cost. Besides, this conductive thread has two conductive bus bars that are arranged in the same direction as non-conducting threads and located in the cloth at a considerable distance from one another, thus making a wire connection inconvenient."

Martin 4,600,602 discloses a low resistance composition consisting of a matrix micron size carbon particles and a phenolic resin having an electrical resistance of 18 to 150 ohms/sq./mil. Martin neither suggests nor provides motivation for ball milling the

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industrial carbon particles of Ohgushi et al.

Ohgushi et al. further differs from claims 6 and 20 in the following manner. In Ohgushi et al, a heating resistive coating is applied by "dipping the fabric in a molten resin or in a resin solution." (see Ohgushi et al. col. 4, lines 16-18). Further, "The fibrous heating element 4 comprises a core fiber 20a of three folded polyester yarn and electric conductive layers 21, 22 and 23 of a polyurethane polymer having carbonaceous particles dispersed therein to cover the core fiber." (see Ohgushi et al., col. 4, lines 40-44) whereas amended claim 6 defines a heating resistive thread having a nucleus made of twisted flexible synthetic or glass fiber or fibers covered with a shell formed by spinning a mixture of a thermoplastic polymer and a colloidal graphite in a spinneret; and heating the coated heating resistive thread to remove an organic solvent (see enclosed FiberSource Company article "Synthetic and Cellulosic Fiber Formation Technology") .

Further, Ohgushi et al neither discloses the use of colloidal graphite nor micron size graphite particles for "layers 21, 22, and 23" (see Bhabha Atomic Research Centre article "Micronization of Natural Graphite Powder".

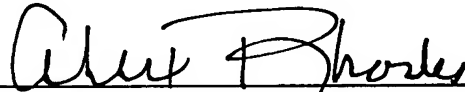
Inasmuch as Coler 2,683,669 discloses a rigid electrical conductive coating and Martin 4,600,602 discloses a rigid electrical resistor, it is submitted that a person skilled in the art of flexible heating cloths would not look to these references.

Since the remaining claims depend from claims 6 and 20, for the reasons stated, these claims are not obvious from the applied references.

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In view of the above, it is believed that this application should be passed for allowance and such favorable action by the Examiner is requested. If the Examiner believes that other positive limitations should be included in the claims to placethe application in a condition for allowance, helpful suggestions would be appreciated.

Respectfully submitted,



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Dated: September 27, 2006